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THE VALSEI OF THE UNITED STATES.

BY M. C. COOKE, M.A., A.L.S.

As a contribution towards the more complete and satisfactory knowledge of the Fungi of the United States, I have from time to time essayed the revision of particular groups, in order to bring together the determined, as well as the doubtful or uncertain species, in order to assist the student, and serve as a basis for a more perfect and critical enumeration.

The present group has been selected as having been subjected to a more critical examination than many others, and as being a large and important one in which it is probable many important additions will yet be made.

The classification adopted is a purely artificial arrangement, which it was thought would best serve the purpose which this communication had in view. It will be observed that the names of only two genera are included, namely, *Valsa* and *Melanconis*, whereas many of the mycologists of the day admit several genera, amongst which they distribute the species. A very few words of explanation will exhibit my views on this subject, with which most European mycologists are familiar.

The principles on which the new genera have been constructed are held to be unsound and delusive, inasmuch as the fundamental assumption that the character of the fructification should hold the first rank, and all other characters be subsidiary to this, tends to reduce a natural to a purely artificial system. They are also unworthy because retrogressive.

In the genus *Valsa*, for example, it has been proposed that the limits of the genus should be confined to such species as have simple sporidia. For species with uniseptate sporidia the genus *Valsaria* was first proposed. This again became modified under *Diaporthe*. This, however, did not satisfy the cravings of the supposed reformers, for after passing through almost every type of sporidia and constituting new genera for them, they reverted to the number of the sporidia contained in each ascus, and, whereas, *Valsa* was to include all octosporous species with simple spores, the species with a larger number of sporidia were to be relegated to *Valsella*.

That this view is unsound it is only necessary to refer to *Valsa* *salicina*, which has sometimes a tetrasporous form, which was at one time supposed to be a distinct species under the name of *Valsa tetraspora*, and it is sometimes octosporous as in typical *Valsa salicina.* If Tulasne is right, then *Sphœria ditopa*, with its polysporous asci, is the same species as *Sphœria conformis* with octosporous asci, and both grow together on the same twig. If the proposed basis of classification be sound, then it is applicable here, and we have the same species, in two conditions, belonging to two distinct genera, which is simply an absurdity.

Without attempting here to enter into details wherefore we have rejected each individual genus, it will be sufficient to announce our faith in the sufficiency of the Friesian system based on external characters supplemented by internal structure. No objection can be urged against the artificial grouping of the members of any one genus by means of the sporidia, as adopted here, for any special purpose, provided always that no fictitious value be assigned to the groups.

The following is the order in which the species are arranged:—

VALSA, Fries, S. V. S., p. 410.

- Sect. I. Sporidia hyaline.
    - A. Sporidia allantoid, or sausage-shaped—minute.
        - α. Asci polysporous.
        - β. Asci octosporous.
            - * Ostiola sulcate.
                - *a.* Necks abbreviated.
                - *b.* Necks elongated.
            - ** Ostiola not sulcate.
                - *a.* Necks abbreviated.
                - *b.* Necks elongated.
    - B. Sporidia allantoid, or sausage-shaped—large.
    - C. Sporidia cylindrical.
    - D. Sporidia fusiform.
    - E. Sporidia subelliptical.
    - F. Sporidia uniseptate.
        - α. Without appendages.
        - β. With appendages.
    - G. Sporidia multiseptate.
- Sect. II. Sporidia colored.
    - A. Sporidia simple.
    - B. Sporidia uniseptate.
    - C. Sporidia multiseptate.
        - α. Without appendages.
        - β. With appendages.
        - γ. With transverse septa, or fenestrate.

The known species being arranged in the above order, the uncertain, or imperfectly known species, chiefly those of Schweinitz, follow in the hope that their enumeration may eventually lead to a knowledge of their fructification. Any such information derived from authentic sources will be accepted with gratitude.

Sect. I. Sporidia hyaline.
A. Sporidia allantoid (minor).
α. Asci polysporous.

1. **Valsa melastoma,** Fries S. V. S. 411; Schwz. Am. Bor. 1341; Nitschke Pyr. Germ., p. 237.

Sporidia numerous, .005 × .001 mm. On apple. Penna. (Schw.).

We have seen no American specimens, and give the characters of the fruit from Nitschke.

Valsa angulata, Fr., is more closely allied to *Diatrype.*

β. Asci octosporous.
* Ostiola sulcate.
a. Necks abbreviated.

2. **Valsa stellulata,** Fries, S. V. S. p. 411; Ntke. Pyr. p. 165; Schw. Bor. 1313; Cooke Handbk. No. 2461.

Sporidia .008–.012 × .002 mm. On bark of various trees. Common. Carolina (Rav. Curt.). Penna. (Michener). Texas (Wright). New Jersey (Berk.). Ohio (Lea). New England (Sprague).—*Ravenel Fungi*, *Car.* i. 51.

3. **Valsa tetraploa,** B. & C.; Cooke Handbk. 2478.

Sporidia about .01 mm. long. On branches. Carolina (Curt. Rav.). New Jersey (Ellis).

Berkeley has latterly united this, or at least some forms of it, with *Valsa stellulata.*

4. **Valsa fraxinicola,** C. & Pk. in N. Y. Museum Reports.

Sporidia .008–.012; very slightly curved, amber-colored. On *Fraxinus Americana.* New York (Peck, 232). Measurements given from an authentic specimen.

5. **Valsa Berchemiæ,** Cooke in herb. (*Valsa syngenesia,* var. *Berchemiæ* Curt. in lett.)

Sporidia .008–.01 mm., pale-brownish. On *Berchemia.* Carolina (Curt. Rav. 1205). Differing in habit from *V. syngenesia*, and also from the foregoing.

6. **Valsa monticulosa,** B. & C. in herb.

Sporidia .008–.01 mm. long. On *Magnolia glauca.* Carolina

(Curt.). Sporidia from authentic specimen sent out by the late Dr. Curtis.

7. **Valsa tumidula**, C. & Pk. in N. Y. Museum Reports.

Sporidia .01–.012 mm. long, pale-brownish. On *Cratægus* and *Platanus*. New York (Peck, 266; Gerard, 35). New Jersey (Ellis). There is a distinct black line on the wood surrounding the perithecia.

8. **Valsa platani**, Schw. Am. Bor. 1372.

Sporidia .01–.012 × .003 mm., pale. On *Platanus*. Carolina (Curt. Rav. 1821). New Jersey (Ellis). New York (Peck). Habit somewhat that of *V. quaternata*; measurement given from specimen sent by Dr. Curtis.

9. **Valsa goniostoma**, B. & C. in Curt. Cat., p. 142.

Sporidia .008–.011 mm., pale-brown. On branches. Carolina (Curtis). Sporidia from specimen communicated by Dr. Curtis.

10. **Valsa rugiella**, C. & E. in Grevillea, vol. v. pp. 92.

Ostiola minute, faintly sulcate, sporidia about .006 mm. long. Asci very small, lanceolate. On *Acer rubrum*. New Jersey (Ellis 2426), with the habit of *V. tetraploa*, but with smaller sporidia.

11. **Valsa juglandina**, C. & E. in Grevillea, vol. v. pp. 92.

Perithecia, 3–5 together, rather large and prominent, with a snowy white powder about the base. Ostiola deeply sulcate. Sporidia .01–.012 × .003 mm. On *Juglans regia*. New Jersey (Ellis, 2421). Certainly not *V. juglandicola*, Schw., and distinct from *V. stellulata*, to which it is allied.

12. **Valsa leaiana**, Berk. in Hook. Lond. Journ. 1845, p. 311.

Sporidia .007 × .002 mm., pale-brown. On Hornbeam. Ohio (Lea). S. Carolina (Rav. 1364). Sporidia from authentic specimen.

13. **Valsa vitis**, Schw. Am. Bor. 1362 (not Nitschke).

Sporidia .012–.014 mm. long. On twigs of *Vitis*. New York (Peck). Penna. (Mich.). Carolina (Curt.). The *Valsa vitis*, Fckl. & Ntke. is quite a different species, although it has been referred to this for which the name of *Valsa vitigera* will have to be substituted, as Schweinitz has priority. (Grevillea v. p. 125.)

14. **Valsa cerviculata**, Fries, S. V. S. 411; Schw. Am. Bor. 1825; Ntke. Pyr. p. 174; Not Sfer. Ital. tab. 33.

Sporidia .006–.007 × .002 mm. On Hornbeam, etc. Bethlehem

(Schw.). Measurement of sporidia given from European specimens, not having seen it from the United States.

15. **Valsa radula,** Pers. Syn. p. 37; Schw. Am. Bor. 1369; Nitschke Pyr. Germ. p. 164?

Sporidia .01–.012 mm. long. On *Populus*. Carolina (Schw.). Measurements from European specimens.

16. **Valsa prunastri,** Fr. S. V. S. p. 411; Schw. Am. Bor. 1312; Ntke. Pyr. 170; Not Sfer. Ital. t. 35; Cooke Hdbk. 2460.

Sporidia .006–.008 × .0015 mm. On *Cerasus*. South Carolina (Rav. 1271; Curt. Schw.); Penna. (Schw.).

b. Necks elongated.

17. **Valsa corynostoma,** B. & C. in Grevillea, No. 871.

Sporidia .006–.008 × .0015 mm. On *Acer rubrum*. S. Car. (Rav. 1587; Curt.). Measurements from authentic specimen in herb. Berkeley.

** Ostiola not sulcate.

b. Necks abbreviated.

18. **Valsa nivea,** Fr. S. V. S. p. 224: Schw. Am. Bor. 1338; Ntke. Pyr. 224; Cooke Hdbk. 2463.

Sporidia .012–.014 × .003 mm. On *Populus* and apple. Penna. (Mich.), Carolina (Curt.), N. Eng. (Frost).

19. **Valsa leucostoma,** Fr. S. V. S. p. 411; Schw. Am. Bor. 1339; Ntke. Pyr. 222; Cooke Hdbk. 2464.

Sporidia .01–.012 × .0025 mm. On *Prunus* and *Persica*. Carolina (Curt. Rav.), Penna. (Mich.), New York (Berk.), N. Eng. (Sprague). *Ravenel's Fungi Car.* iii. 67.

20. **Valsa syngenesia,** Fr. S. V. S. 411, Curt. Cat. 142; Schw. Am. Bor. 1321; Cooke Hdbk 2462.

Sporidia .01 mm. long. On *Rubus strigosus*. Carolina (Curt.). We have seen no American specimen. The measurements are from a British, according to Rev. M. J. Berkeley's determination. Mr. F. Currey's is a different species, with lanceolate, quadrinucleate sporidia.

21. **Valsa microstoma,** Fr. S. V. S. p. 411; Schw. Am. Bor. 1342; Ntke. Pyr. 193; Cooke Hdbk. 2466.

Sporidia .01 × .002–.0025 mm. On bark. Carolina (Schw.), Penn. (Schw.).

22. **Valsa americana,** B. & C. in Grevillea 873 (probably *V. alni*, Pk.).

Sporidia .01–.012 × .002 mm. On bark of various trees. Common. Carolina (Cut. Rav.), N. Eng. (Sprague), with the habit of *M. stilbostoma*, but with different fruit.

23. **Valsa colliculus,** Worms, in Fr. Sys. Myc. ii. 389.

Asci and sporidia very minute. Sporidia .005–.006 mm. long. On bark of *Pinus*. New York (Sartwell, Peck). Sporidia from specimen communicated by the late Dr. Curtis.

24. **Valsa abietis,** Fr. S. V. S. 412; Grevillea, v. p. 53; Ntke. Pyr. 186; Cooke Hdbk. 2473.

Sporidia .008–.009 × .0015 mm. On bark of White Cedar· New Jersey (Ellis, 2398).

25. **Valsa pini,** Fr. S. V. S. 412; Ntke. Pyr. 183.

Sporidia .006–.009 × .0015 mm. On bark of *Pinus*. N. York (Peck), New Eng. (Sprague). Sporidia from Fries Scler. Suec. No. 7.

26. **Valsa leiphœmioides,** B. & C. in Grevillea 868 (not *Cryptospora leiphæmioides* of Fuckel).

Sporidia .01 mm. long. On Oak. Carolina (Curt.), New Eng. (Sprague). The exposed ostiola, when the cuticle is stripped off, are mixed with a white powder. We have seen no specimen.

27. **Valsa fulvella,** B. & Rav. in Grevillea No. 870.

Sporidia .01–.014 mm. long; pale amber. On *Platanus occidentalis*. S. Carolina (Rav. 1825). Sporidia from specimen furnished by Ravenel.

28. **Valsa haustellata,** Fr. Sys. Myc. ii. 383; Schw. Am. Bor. 1320.

Sporidia .006–.008 × .002 mm. Rather strongly curved, amber colored. On *Alnus serrulata*, and *Ostrya virginica*. S. Carolina (Curt. Rav.), N. York (Peck). *Ravenel Fun. Car.* iii. 53.

29. **Valsa liquidambaris,** Schw. Am. Bor. 1352; Grevillea, v. p. 34, pl. 75, fig. 16.

Sporidia .012 mm. long. On bark of *Liquidambar*. Carolina (Curt.), N. Jersey (Ellis). This appears to be the species of Schweinitz on the faith of specimens from Dr. Curtis.

30. **Valsa subclypeata,** C. & Pk. in N. Y. Museum Reports.

Sporidia .01–.012 × .003 mm., very slightly curved. On *Rhododendron* and *Quercus*. New York (Peck, 341). The disk is white, surrounded by the blackened cuticle.

31. **Valsa gossypina,** Cooke in herb.

Sporidia minute, .005–.006 mm. long; colorless. On branches of *Gossypium*. S. Carolina (Rav. 1387). Habit similar to that of *V. quaternata*.

32. **Valsa caryigena,** B. & C. in Grevillea, 872.

Sporidia .01–.012 mm. long. On branches of *Carya*. Penna. (Mich.), N. Jersey (Ellis?). Pustules small, in rows; covered below with the smooth bark; disk white, studded with the black ostiola. Not having seen authentic specimen, those of Ellis from New Jersey are referred doubtfully.

33. **Valsa subscripta,** Wallr. Fl. Crypt. ii. 813.

Sporidia minute. On *Robinia*. Carolina (Curt.). Hitherto we have no knowledge of this species.

34. **Valsa anomia,** Schw. Am. Bor. 1316.

Sporidia .007–.008 mm. long. On *Robinia*. Carolina (Schw.), According to Berkeley, the Schweinitzian specimens have sausage shaped sporidia, .01 mm. long. In others there are uniseptate stylospores. The above dimensions are from specimens in Herb. Berkeley.

35. **Valsa decorticans,** Fr. S. V. S. 412; Schw. Am. Bor. 1354; Ntke. Pyr. 194.

Sporidia .01–.012 × .0025 mm. On bark of *Kerria Japonica* and *Syringa*. Carolina (Curt.). We have seen no American specimens, but Nitschke gives the sporidia as .01–.012 × .0025 mm. In specimen published by Mougeot and Nestler, they are rather smaller.

36. **Valsa coronata,** Fr. S. V. S. 412; Schw. Am. Bor. 1351; Ntke. Pyr. 196; Cooke Hdbk. 2471.

Sporidia .006–.007 × .0015 mm. On *Castanea* and *Bignonia*. Carolina (Curt.). The measurements are given from European specimens.

37. **Valsa munda,** B. & C. in Grevillea, No. 864.

Asci lanceolate. Sporidia sausage-shaped. On smooth branches of *Cornus*. Alabama (Peters). Pustules completely covered by the bark, which is blackened over them, or appears black; the disk, bordered with white, being free. We have seen no specimen.

38. **Valsa orbicula,** B. & C. in Grevillea, No. 867.

Sporidia .01–.012 mm. long. On Willow. Carolina (Curt.). Minute, orbicular, showing the subjacent perithecia by transparence, but not blackened; surrounded by a black line. This species also we have not seen.

39. **Valsa tessella,** Fr. S. V. S. 411; Schw. Am. Bor. 1348; Curt. Cat. p. 142.

Sporidia .01–.012 mm. long. On willows. Carolina (Schw.), Penna. (Schw.). Sporidia from specimens derived from Fries.

40. **Valsa monadelpha,** Fr. Sys. Myc. ii. 382; Schw. Am. Bor. 1317.

Sporidia about .01 mm. long. On *Prunus.* New England (Torrey), Penna. (Schw.). Sporidia from specimens published by Desmazieres, No. 961.

41. **Valsa truncata,** C. & Pk. in N. Y. Museum Reports.

Spermatia profuse .003–.005 mm. long. Sporidia .009–.011 mm. long. On *Alnus.* New York (Peck, 35).

42. **Valsa prœstans,** B. & C. in Curt. Cat.

Measurements from original specimen. Sporidia .01–.012 × .003 mm. On branches of *Nyssa.* Carolina (Curt.), New Jersey (Ellis, 2425).

We have seen no authentic specimen and no description. The dimensions of the sporidia are given from the New Jersey specimens which we have referred to this species with hesitation.

43. **Valsa ceratophora,** Tul. Fung. Carp. ii. 191; Schw. Am. Bor. 1266; Ntke. Pyr. 180; Cooke Hdbk. 2472 (*Sphæria ceratosperma,* Tode).

Sporidia .006–.008 × .0015 mm. On branches of oak, holly, etc. Carolina (Schw. Rav. 1832), New England (Frost).

44. **Valsa rosarum,** Not. Sfer. Ital. t. 42; Cooke Hbdk. No. 2472, var.

Sporidia .006 × .0015 mm. On Rose. Carolina (Rav. 1466).

The *Diatrype hystrix* of the United States is *not* the *Valsa longirostres*, Tulasne.

46. **Valsa pulchella,** Fr. S. V. S. 412; Schw. Am. Bor. 1380; Cooke Hdbk. 2481. *Calosphæria princeps,* Ntke. Pyr. 91.

Sporidia .006 × .0015 mm. On bark of cherry, peach, etc. Carolina (Curt.), New York (Gerard, 72). *Ravenel*, *Fun. Car.* i. 66.

47. **Valsa ciliatula,** Fr. Sys. Myc. ii. 405; Schw. Am. Bor. 1379; *Calosphæria Wahlenbergii,* Ntke. Pyr. 92 (?).

Sporidia .009–.012 × .002 mm. On bark of *Betula.* Bethlehem (Schw.). Sporidia described from specimen published by Fries. Scler. Suec. 147.

B. Sporidia allantoid (Major).

48. **Valsa quaternata,** Fr. S. V. S. 412; Schw. Am. Bor. 1386; Cooke Hdbk. 2482; *Quaternaria Persoonii,* Ntke. Pyr. 87.

Sporidia .014–.02 × .004 mm. On *Populus* and *Alnus serru-*

lata. Penna. (Mich.), Vermont (Russell), Carolina (Curt.), Ohio (Lea), New York (Gerard, 29, Peck).

49. **Valsa salicina**, Fr. S. V. S. 412; Schw. Am. Bor. 1361; Ntke. Pyr. 212; Cooke Hdbk. 2476.

Sporidia .014–.018 × .003 mm. On willow. Carolina (Curt.). New England (Russell), Penna. (Schw.), New York (Peck, 231). *Ravenel Fun. Car.* iv. 60.

50. **Valsa ambiens**, Fr. S. V. S. 412; Schw. Am. Bor. 1364; Ntke. Pyr. 213; Cooke Hdbk. 2475.

Sporidia .016–.022 × .005 mm. On apple, *Prunus*, etc., Penna. (Schw.), New York (Sartwell, Peck), Carolina (Schw. Curt.).

51. **Valsa coaperta**, Cooke in Grevillea, v.

Sporidia .016–.018 × .004 mm. On *Ulmus*. New York (Rav. 1903).

52. **Valsa dissepta**, Fr. S. V. S. 412; Schw. Am. Bor. 1347; Cooke Hdbk. 2467; *Quaternaria dissepta*, Ntke. Pyr. 88.

Sporidia pale brown, .024–.03 × .006–.008 mm. On *Salix* and *Amorpha fruticosa*. Carolina (Curl. Rav.). We have seen no American specimens; all the specimens, including Rav. 1219, belong to quite a different species. The fructification above given is from British specimens.

53. **Valsa mesoleuca**, B. & C. in Grevillea No. 879.

Sporidia .02 mm. long. On *Viburnum dentatum*. Penna. (Mich.). Disk white, surrounded by the black osteola, or sometimes dotted.

54. **Valsa dolosa**, Fr. Sys. Myc. ii. 405; Schw. Am. Bor. 1368; Ntke. Pyr. 200.

Sporidia .014–.018 × .003–.005 mm. On branches of *Celastrus*. Carolina (Schw.). The dimensions above are given from Nitschke. Notaris states that the sporidia are uniseptate.

55. **Valsa corniculata**, Ehr. Crypt. No. 300; Curtis Cat. p. 142; Schw. Am. Bor. 1325; Cooke Hdbk. 2438.

Sporidia .02 mm. long. On bark of ash. Carolina (Curt. Schw.).

56. **Valsa acclinis**, Fr. S. V. S. 412; Schw. Am. Bor. 1389.

Sporidia clustered together in a subglobose mass at the top of the ascus; .025–.02 mm. long. On branches of sassafras. Carolina (Schw. Curt.). Nitschke (Pyr. 207) gives the measurement of the sporidia as .007–.009 × .002 mm., which must be quite a different species.

C. Sporidia cylindrical.

57. **Valsa suffusa,** Fr. S. V. S. 412; Schw. Am. Bor. 1357; Cooke Hdbk. 2485.

Sporidia .04–.05 × .004 mm. On *Alnus* and *Salix.* New Jersey (M. J. B.); Bethlehem (Schw.); New York (Peck, 34). American specimens accord with British in the dimensions of the sporidia.

58. **Valsa trichispora,** C & Pk. in N. Y. Museum Reports.

Sporidia very slender, almost filiform, .05 mm. long, faintly multiseptate. On oak twigs. New York (Peck, 7).

59. **Valsa albofusca,** C. & Ellis in Grevillea, vol. v. p. 31, pl. 75, fig. 8.

Sporidia linear, nucleate, .04 × .005 mm. On *Quercus obtusiloba.* New Jersey (Ellis, 2325). Measurements from the original specimen.

60. **Valsa cinctula,** C. & Pk. Grevillea, v. p. 31, pl. 75, fig. 15.

Sporidia linear, curved, triseptate when mature; .05 mm. long. On chestnut. New York (Peck, 272); New Jersey (Ellis, 2326). The clusters of perithecia are girt by a white ring. The sporidia in the original specimens from New York were simple, those from New Jersey faintly triseptate; apparently a question of maturity.

D. Sporidia fusiform.

61. **Valsa aculeatus,** Schw. Am. Bor. 1399. (*Valsa rufescens,* Schw. Am. Bor. 1395).

Sporidia fusiform, narrow, quadrinucleate, then triseptate; .015–.017 mm. long. On *Rhus typhina.* Massachusetts (M. J. B.); Carolina (Rav.). In our copy of Ravenel's Fungi, Car. fasc. iii. No. 68, under the name of *Valsa stilbostoma*, is this species. Dr. Curtis also seems to have fallen into this error.

62. **Valsa albovelata,** B. & C in Grevillea No. 875.

Sporidia fusiform, narrow, quadrinucleate; .02 × .004 mm. On *Rhus copallina.* Carolina (Curt. Rav. 527). Disk white, pierced by the cylindrical ostiola. *Valsa polystoma*, B. & C. in herb. On *Rhus copallina.* According to specimen from Dr. Curtis, this must be the same species.

E. Sporidia subelliptical.

63. **Valsa innata,** B. & C. in Grevillea No. 874.

Sporidia oblong, uniseriate, narrowed towards each end; .0075 mm. long. On *Castanea vesca.* New York (Berk.). We have seen no specimen.

F. Sporidia uniseptate.

a. Not appendiculate.

64. **Valsa albocincta,** C. & Pk. in N. Y. Museum Reports.

Sporidia elliptic, uniseptate, slightly constricted, uniseriate; .018 × .006 mm. On *Acer spicatum*. New York (Peck). When the bark is removed, the perithecia are encircled with white, a black circumscribing line enters deeply into the wood.

65. **Valsa fibrosa,** Fr. S. V. S. p. 412; Schw. Am. Bor. 1324; Cooke Hdbk. 2489.

Sporidia elliptic, uniseptate; .015 × .007 mm. On branches. New York (Berk.), Carolina (Curt.). We have seen no American specimens. Rev. M. J. Berkeley states that the sporidia are uniseptate, at length fenestrate; .015 mm. long. European specimens do not exhibit any tendency to become fenestrate, and if this should prove a feature in the United States species, there is good ground for believing it distinct. Some authors unite *Valsa extensa* with this species.

66. **Valsa extensa,** Fr. S. V. S. 412; Schw. Am. Bor. 1315; Cooke Hdbk. 2488.

Sporidia elliptic, uniseriate; .013-.015 mm. long. On branches. Bethlehem (Schw.). Very closely allied to *Valsa fibrosa*, Fr.

67. **Valsa enteroleuca,** Fr. S. V. S. p. 412; Schw. Am. Bor. 1314; Cooke Hdbk. 2501.

Sporidia shortly fusiform, uniseptate; .015-.017 mm. long. On *Robinia*. Carolina (Curt.).

68. **Valsa leiphemia,** Fr. S. V. S. 412; Schw. Am. Bor. 1356; Cooke Hdbk. 2490.

Sporidia shortly fusiform, uniseptate; .015.-017 × .006 mm. On oak. South Carolina (Rav.); Penna. (Mich.) Sporidia described from British specimens.

69. **Valsa impulsa,** C. & Pk. in N. Y. Museum Reports.

Sporidia narrowly elliptic, uniseptate, nucleate; .02-.022 × .008 mm. On *Pyrus Americana*. New York (Peck, 273).

70. **Valsa glyptica,** B. & Curr. Grevillea No. 866.

Sporidia fusiform, sometimes sigmoid, uniseptate; .05 mm. long. On willow. Carolina (M. J. B.). We have not seen this species, but it reminds one so strongly of *Valsa tessera*, Fr., that we doubt whether the slight appendages may not have been overlooked.

71. **Valsa carpini,** Pers. Fr. S. V. S. 412; Schw. Am. Bor. 1326.

Sporidia lanceolate, uniseptate, nucleate; .014 × .004 mm. On *Carpinus betulus*. Carolina (Schw.); Penna. (Schw.).

72. **Valsa furfuracea,** Fr. S. V. S. 412; Schw. Am. Bor. 1387; Cooke Hdbk. 2493.

Sporidia uniseriate, narrowly elliptical, uniseptate, .025-03×.011 mm. On *Tilia*. Bethlehem (Schw.). Sporidia from British specimens referred to this species.

73. **Valsa conjuncta,** Nees Sys. p. 305; Fr. S. V. S. 412; Schw. Am. Bor. 1383

Sporidia lanceolate, uniseptate, .016 × .004 mm. On *Prunus*. Bethlehem (Schw.). Sporidia described from European specimens.

β. Sporidia appendiculate.

74. **Valsa tessera,** Fr. Sys. Myc. ii. 405; Schw. Am. Bor. 1367 (*Valsa mucronata*, Peck).

Sporidia fusiform, straight or curved, uniseptate, .05-.06 × .011-.012 mm., with a short hyaline apiculus at each extremity. On bark of *Corylus* and *Salix*. Bethlehem (Schw.). New York (Peck).

75. **Valsa thelebola,** Fr. S. V. S. 412; Schw. Am. Bor. 1384; Cooke Hdbk. 2503.

Sporidia elongated, rounded at the ends, often curved, uniseptate, aristate at each extremity, .04-.045 × .01 mm., without the appendages. On *Juniperus Virginiana* and *Alnus*. Bethlehem (Schw.). N. York (Peck, 52). The New York specimens accord with the European.

76. **Valsa taleola,** Fr. S. V. S. 411; Schw. Am. Bor. 1345: Cooke Hdbk. 2502 (*Valsa oxyspora*, Peck).

Sporidia elliptical, uniseptate, .02-.03 mm. long, aristate at either end, and sometimes at the commissure at each side. On oak limbs. Carolina (Curt.). New York (Peck).

G. Sporidia multiseptate.

77. **Valsa gemmata,** B. & C. in Grevillea No. 876.

Sporidia fusiform, triseptate. On *Rhus radicans*. Carolina (Curt.). Ostiola stellate, necks united. Our specimen under this name (Rav. 1222) has very different fruit, and is similar to *Valsa tetraploa*.

78. **Valsa pennsylvanica,** B. & C. in Grevillea 865.

Sporidia narrow, oblong, sometimes wide at one end, sometimes slightly curved, triseptate, .025 mm. long. On *Cerasus Pennsylvanica*. New York (Berk.). Bursting transversely, perithecia in the centre of a facette. We have seen no specimen.

79. **Valsa capsularis,** Pers. Syn. p. 42; Curt. Cat. p. 142; Schw. Am. Bor. 1363.

Sporidia fusiform, triseptate, hyaline. On bark of *Ampelopsis*.

Carolina (Curt.). The characters of the fruit are given on the authority of Notaris.

Sect. II. Sporidia colored.

A. Sporidia simple.

80. **Valsa turgida**, Fr. S. V. S. p. 413; Curt. Cat. p. 142; Schw. Am. Bor. 1359. Cooke Hdbk. 2504.

Sporidia elliptic, brown, .0076–.01 mm. long. On *Liriodendron*. Carolina (Curt.). Penna. (Schw.). Described from European specimens.

B. Sporidia uniseptate.

81. **Valsa toxici**, Schw. Am. Bor. 1330.

Sporidia elliptical, uniseptate, brown, .012 × .005 mm. On *Rhus radicans*. S. Carolina (Rav. 1424).

82. **Valsa celtidis**, Cooke in Grevillea, v. p. 55, pl. 81, fig. 3.

Sporidia uniseriate, elliptic, uniseptate, brown, .02 × .008 mm. On branches of *Celtis*. S. Carolina (Rav. 1833). Quite distinct from *Sphœria celtidis* B. & C., according to the description.

83. **Valsa notarisii**, D. R. & M. Fl. Alg. t. 25, fig. 6.

Sporidia uniseriate, uniseptate, brown, constricted at the septum, .02 × .008 mm. On *Robinia* and *Gleditschia*. Carolina (Curt.).

83 *bis*. **Valsa clethræcola**, C. & E. Grevillea v. p. 92.

Sporidia biglobose, brown, uniseptate, .018 × .009 mm. On *Clethra alnifolia*. New Jersey (Ellis).

84. **Valsa peckii**, Howe MSS. in N Y. Museum Reports.

Sporidia uniserrate, uniseptate, brown, .014 × .006 mm. On *Kalmia*. New York (Howe). N. Jersey (Ellis).

85. **Valsa fulvopruinata**, Berk. in Lea's Cincinnati; Curr. Linn. Trans.

Sporidia elliptic, uniseptate, brown. On *Platanus*. Ohio (Lea), Carolina (Curtis), Conn. (Wright).

86. **Valsa melastroma**, Fr. S. V. S. p. 412; Schw. Am. Bor. 1358.

Sporidia elliptic, uniseptate, brown, .032 × .014 mm. On bark of *Ulmus*. Salem (Schw.). We have seen no authentic American specimen. Character of sporidia given from specimen published by Fries Scler. Suec. 223.

C. Sporidia multiseptate.

87. **Valsa tubulosa,** B. & C. in Grevillea.

Sporidia fusiform, obtuse at the ends, triseptate, brown, .03 × .01 mm. On *Alnus*. Carolina (Curtis). Sporidia from original specimen from Dr. Curtis.

88. **Valsa profusa,** Fr. S. V. S. p. 411 (*Valsa Sartwelli,* B. & C. in herb. *Aglaospora profusa,* Tul. Carp.); *Sphæria profusa,* Schw. Am. Bor. 1346; Cooke Hdbk. 2511.

Sporidia large, oblong, elliptic, quadrilocular, at length brown, .06–.07 × .018–.02 mm. On bark of *Robinia*. Carolina (Curt.), New England (Sprague), New York (Gerard, 9 Peck.). Authentic specimens of *V. Sartwelli* are undoubtedly this species.

89. **Valsa convergens,** Tode Fr. Sys. Myc.; Sch. Am. Bor. 1390; Cooke Hdbk. 2505.

Sporidia sub-cymbœform, irregular, triseptate, brown. On *Rosa corymbosa*. Carolina (Schw.), Penna. (Schw.).

β. Sporidia appendiculate.

90. **Valsa hapalocystis,** B. & Br.; Cooke Hdbk. No. 2515.

Sporidia oblong-elliptic, appendiculate at either end, biseptate, brown, .035 × .015 mm. On *Platanus occidentalis*. New York (Peck). Inserted on the authority of Mr. Peck.

γ. Sporidia transversely septate.

91. **Valsa condensata,** B. & C. Grevillea, No. 878.

Sporidia obovate, 5 septate, here and there vertically divided, brown, .02 mm. long. On *Quercus montana*. Virginia (Curt.).

92. **Valsa castanicola,** B. & C. in Grevillea, No. 869.

Sporidia cymbœform, pointed, triseptate, at length vertically divided, .01 mm. long. On small twigs of *Castanea*. Virginia (Curt.). We have not seen this species. Probably it is the same with *Valsa castanophila* of Curtis's catalogue.

93. **Valsa vestita,** Fr. S. V. S. p. 412; Schw. Am. Bor. 1388; Cooke Hdbk. 2514.

Sporidia elliptic, brown, transversely and longitudinally septate, .02 mm. long. On *Ribes florida*. Bethlehem (Schw.). Described from European specimens.

Sporidia uncertain.

94. **Valsa plagia,** B. & C. Curt. Cat. p. 141.

Fallen limbs of *Liriodendron*. Carolina (Curt.). This species does not appear to be known to the Rev. M. J. Berkeley.

95. **Valsa Bignoniæ,** Schw. Am. Bor. 1310; Curt. Cat. p. 141.

On bark of *Tecoma*. Carolina (Curt. Schw.).

96. **Valsa scoparia,** Schw. Am. Bor. 1318; Curt. Cat. p. 141.

On bark of *Juglans*. Carolina (Curt.).

97. **Valsa pugillus,** Schw. Am. Bor. 1322; Curt. Cat. p. 142.

On wood of maple. Carolina (Curt.). Penna. (Schw.).

98. **Valsa scutellata,** Pers. Syn. Fung. 37; Curt. Cat. p. 142; Schw. Am. Bor. 1344.

On *Prunus* and *Cornus*. Carolina (Schw.). Penna. (Schw.

99. **Valsa frustrum-coni,** Schw. Am. Bor. 1329; Curt. Cat. p. 142.

On roots of oak. Carolina (Curt.).

100. **Valsa ciliata,** Fr. S. V. S. p. 141; Curt. Cat. p. 142; Schw. Bor. 1349. (*Vide* Tul. Carp. ii. pp. 201.)

On bark of *Ulmus*. Penna. (Schw.). Carolina (Curt.).

101. **Valsa pusio,** B. & C. in herb.; Curt. Cat. p. 142.

On braches of *Morus multicaulis*. Carolina (Curt.). This species does not appear to be known to the Rev. M. J. Berkeley.

102. **Valsa umbilicata,** Pers. in Fr. S. V. S. p. 412; Curt. Cat. p. 142; Schw. Am. Bor. 1385.

On branches of *Lonicera sempervirens*. Carolina (Curt.). Bethlehem (Schw.).

103. **Valsa divergens,** Schw. Am. Bor. 1393; Curt. Cat. p. 143.

On *Liquidambar*. Carolina (Schw. Curt.).

104. **Valsa juglandicola,** Schw. Am. Bor. 1328.

On *Juglans tomentosa* and *alba*. Carolina (Schw.). Penna. (Schw.).

105. **Valsa rubincola,** Schw. Am. Bor. 1329.

On *Rubus*. Bethlehem (Schw.).

106. **Valsa allostoma,** Schw. Am. Bor. 1332.

On Robinia. New England (Torrey).

107. **Valsa oligostoma,** Schw. Am. Bor. 1333.

Inside bark of *Castanea*. Bethlehem (Schw.).

108. **Valsa amorphostoma,** Schw. Am. Bor. 1334.

On *Gleditschia*. Bethlehem (Schw.).

109. **Valsa radicium,** Schw. Am. Bor. 1335.

On roots of trees. Bethlehem (Schw.).

110. **Valsa conspurcata**, Schw. Am. Bor. 1336.

On oak branches. Bethlehem (Schw.).

111. **Valsa modesta**, Schw. Am. Bor. 1337.

On young branches of *Ulmus*. Bethlehem (Schw.).

112. **Valsa comptoniæ**, Schw. Am. Bor. 1353.

On *Comptonia*. Bethlehem (Schw.).

113. **Valsa variolaria**, Schw. Am. Bor. 1371.

On *Tilia*. Bethlehem (Schw.).

114. **Valsa conseptata**, Schw. Am. Bor. 1373.

On bark of *Gleditschia*. Bethlehem (Schw.).

115. **Valsa papyriferæ**, Schw. Am. Bor. 1375.

On *Broussonetia papyrifera*. Bethlehem (Schw.).

116. **Valsa ceanothi**, Schw. Am. Bor. 1376.

On dead stems of *Ceanothus*. Bethlehem (Schw.).

117. **Valsa indistincta**, Schw. Am. Bor. 1377.

On young branches of sassafras. Carolina (Schw.).

118. **Valsa quadrifida**, Schw. Am. Bor. 1378.

On *Vaccinium corymbosum*. Bethlehem (Schw.).

119. **Valsa scabriseta**, Schw. Am. Bor. 1394.

On other *Sphæria* on bark of *Castanea*. Bethlehem (Schw.).

120. **Valsa expers**, Schw. Am. Bor. 1396.

On *Rosa corymbosa*. Bethlehem (Schw.).

121. **Valsa rimicola**, Schw. Am. Bor. 1397.

On *Comptonia asplenifolia*. Bethlehem (Schw.).

122. **Valsa rhizina**, Schw. Am. Bor. 1398.

On roots of *Rhododendron*. Bethlehem (Schw.).

123. **Valsa halseyana**, Schw. Am. Bor. 1319.

On bark of *Betula*. New York (Schw.).

124. **Valsa lixivia**, Fr. S. V. S. p. 411; Schw. Am. Bor. 1327.

On *Juglans cinerea*. Bethlehem (Schw.).

125. **Valsa tortuosa**, Fr. Act. Holm. 1817, p. 98; Schw. Am. Bor. 1350.

On pine branches, infested with *Peridermium*. New Jersey (Schw.).

126. **Valsa deformis**, Fr. Sys. Myc. ii. 398; Schw. Am. Bor. 1355.

On *Quercus*. Bethlehem (Schw.).

127. **Valsa clopima,** Fr. S. V. S. p. 142; Schw. Am. Bor. 1360.

On twigs. Bethlehem (Schw.).

128. **Valsa leucopis,** Fr. S. V. S. p. 412; Schw. Am. Bor. 1365.

On *Syringa.* Bethlehem (Schw.).

129. **Valsa sphinctrina,** Fr. S. V. S. p. 412; Schw. Am. Bor.

On *Catalpa* and *Juglans nigra.* Bethlehem (Schw.).

130. **Valsa aperta,** Fries (?); Schw. Am. Bor. 1381.

On *Populus italica.* Bethlehem (Schw.).

131. **Valsa vasculosa,** Fr. S. V. S. p. 412; Schw. Am. Bor. 1382.

On *Prunus.* Bethlehem (Schw.).

132. **Valsa pusilla,** Fr. S. V. S. p. 412; Schw. Am. Bor. 1391.

On bark of *Castanea.* Bethlehem (Schw.).

133. **Valsa abnormis,** Fr. S. V. S. p. 412; Schw. Am. Bor. 1392.

On *Sambucus.* Fries writes of this " *V. abnormis,* dubia sp." We have seen no specimen.

MELANCONIS, Tul. Carp. ii. 115.

A. Sporidia colored.

1. **Melanconis stilbostoma,** Tul. Carp. ii. 120; Schw. Am. Bor. 1366; Cooke Hdbk. 2454.

Conidia subglobose, olive, .014–.016 × .008–.01 mm. Stylospores elliptic, uniseptate, brown. Sporidia biseriate, colorless, uniseptate. .018 × .008 mm. On bark of *Betula, Acer, Melia.* Carolina (Schw. Rav.), Penn. (Schw.), New York (Peck 15). In the New York specimens stylospores, like the spores of *Diplodia,* occur in perithecia, which are collected in circles, and so much like those containing ascospores, that the one cannot be distinguished from the other by any external feature. Hitherto we have not seen such stylospores associated with European specimens, nevertheless there is no reason for supposing that the American species is distinct. The size and character of the ascospores are precisely identical. This is an interesting contribution to the life history of the species for which we are indebted to Mr. C. Peck, on *Betula papyrifera.*

2. **Melanconis chrysostoma,** (Fr.), Tul. Fung. Carp. ii. p. 125; Cooke Hdbk. 2456 (not Fuckel).

Conidia ovate, apiculate at the base; olive brown; 1–2 nucleate, 015 × .01 mm. Sporidia elliptic, uniseptate, hyaline, .0177–.022 mm. long. On bark of *Carpinus*, *Quercus alba*. Carolina (Peck).

B. Sporidia colored.

a. Not appendiculate.

3. **Melanconis lanciformis**, Tul. Carp. ii. t. 16; Schw. Am. Bor. 1263; Cooke Hdbk. 2458.

Conidia clavate, 3- 4- 6-celled. Sporidia long, elliptical, brown, quinqueseptate, .036 × .012 mm. On *Betula*. Bethlehem (Schw.).

Melanconis elliptica, Peck, on *Betula populifolia;* does not appear to be specifically distinct from *M. lanciformis*.

b. Sporidia appendiculate.

4. **Melanconis bicornis**, C. & Pk. in N. Y. Museum Reports.

Sporidia .06 × .015 mm. with appendages, together .15 mm. long. On *Platanus*. New York (Peck, Gerard).

5. **Melanconis amygdalina**, Cooke in Grevillea, v. p. 55, pl. 81, fig. 4.

Sporidia almond-shaped, simple brown, .025 × .01 mm. with thin hyaline appendages at each end, .02–.03 mm. long. On *Liquidambar*. Carolina (Rav.).